

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. – 4. (Canceled)

5. (Previously presented) A method of fabricating a flash memory device, said flash memory device comprising a silicon substrate, a first electrode formed on said silicon substrate with an insulation film interposed therebetween, and a second electrode formed on said first electrode with an inter-electrode insulation film interposed therebetween, said inter-electrode insulation film having a stacked structure including therein at least one silicon oxide film and one silicon nitride film, the method comprising forming said silicon oxide film by a process comprising:

supplying a gas containing oxygen and a gas predominantly of Kr into a processing chamber, and

exciting plasma in said processing chamber by a microwave to form said silicon oxide film on a (111) oriented surface of said first electrode.

6. (Currently amended) A method of fabricating a flash memory device, said flash memory device comprising a silicon substrate, a first electrode formed on said silicon substrate with an insulation film interposed therebetween, and a second electrode formed on said first electrode with an inter-electrode insulation film interposed therebetween, said inter-electrode insulation film having a stacked structure in which a first silicon nitride film, a first silicon oxide film, a second silicon nitride film and a second silicon oxide film are stacked consecutively, said first electrode having a polysilicon surface, the method comprising forming said first and second silicon nitride films by a process comprising:

introducing a gas containing Kr gas, N₂ gas, and H₂ gas; and

exciting plasma in said processing chamber by a microwave to form said first silicon nitride film on said first electrode and to form said second nitride film on said first silicon oxide film and forming said first and second silicon oxide films by a process comprising:

introducing a gas containing oxygen and a gas predominantly of Kr into a processing chamber, and

exciting plasma in said processing chamber by a microwave to form said first silicon oxide film on said first silicon nitride film and to form said second oxide film on said second silicon nitride film.

7. (Previously presented) A method of fabricating a flash memory device, said flash memory device comprising a silicon substrate, a first electrode formed on said silicon substrate with an insulation film interposed therebetween, and a second electrode formed on said first electrode with an inter-electrode insulation film interposed therebetween, said inter-electrode insulation film having a stacked structure in which a first silicon oxide film, a silicon nitride film and a second silicon oxide film are stacked consecutively, said first electrode having a polysilicon surface, the method comprising forming said first and second silicon oxide films by a process comprising:

introducing a gas containing oxygen and a gas predominantly of Kr into a processing chamber, and

exciting plasma in said processing chamber by a microwave to form said first silicon oxide film on a (111) oriented surface of said first electrode and to form said second silicon oxide film on said silicon nitride.

8. (Currently amended) A method of fabricating a flash memory device, said flash memory device comprising a silicon substrate, a first electrode formed on said silicon substrate with an insulation film interposed therebetween, and a second electrode formed on said first electrode with a inter-electrode insulation interposed therebetween, said inter-electrode insulation film having a two-layer structure in which a silicon oxide film and a silicon nitride film are stacked consecutively, said first electrode having a polysilicon surface, the method comprising forming said silicon oxide film by a process comprising:

forming the silicon oxide film on the silicon nitride film by a CVD process;

introducing a gas containing oxygen and a gas predominantly of Kr into a processing chamber; and

exciting plasma in said processing chamber by a microwave; and
exposing the silicon oxide film to the plasma.

9. (Previously presented) A method of fabricating a flash memory device, said flash memory device comprising a silicon substrate , a first electrode formed on said silicon

substrate with an insulation film interposed therebetween, and a second electrode formed on said first electrode with an inter-electrode insulation film interposed therebetween, said inter-electrode insulation film having a stacked structure including at least one silicon nitride film, the method comprising forming said silicon oxide film by a process comprising:

exposing a silicon oxide film deposited on said at least one silicon nitride film by a CVD process to atomic state oxygen O* formed by microwave excitation of plasma in a mixed gas of an oxygen-containing gas and an inert gas predominantly of a Kr gas.

10. (Previously presented) A fabrication process of a flash memory device, said flash memory device comprising a silicon substrate, a first electrode formed on said silicon substrate with an insulation film interposed therebetween, and a second electrode formed on said first electrode with an inter-electrode insulation film interposed therebetween, said inter-electrode insulation film having a stacked structure in which a first silicon nitride film, a first silicon oxide film, a second silicon nitride film and a second silicon oxide film are stacked consecutively, said first electrode having a polysilicon surface, the method comprising forming said first and second silicon oxide films by a process comprising:

exposing a silicon oxide film deposited by a CVD process to atomic state oxygen O* formed by exciting plasma in a mixed gas of a gas containing oxygen and a gas predominantly of a Kr gas, by a microwave.

11. (Previously presented) A method of fabricating a flash memory device, said flash memory device comprising a silicon substrate, a first electrode formed on said silicon substrate with an insulation film interposed therebetween, and a second electrode formed on said first electrode with an inter-electrode insulation film interposed therebetween, said inter-electrode insulation film having a stacked structure in which a first silicon oxide film, a silicon nitride film and a second silicon oxide film are stacked consecutively, said first electrode having a polysilicon surface, the method comprising forming said second silicon oxide film by a process comprising:

exposing a silicon oxide film deposited by a CVD process to atomic state oxygen O* formed by exciting plasma in a mixed gas of a gas containing oxygen and a gas predominantly of a Kr gas by a microwave.

12. – 13. (Canceled)

14. (Previously presented) A method of fabricating a flash memory device, said flash memory device comprising a silicon substrate, a first electrode formed on said silicon substrate with an insulation film interposed therebetween, and a second electrode formed on said first electrode with an inter-electrode insulation film interposed therebetween, said inter-electrode insulation film having a stacked structure in which a first silicon oxide film, a silicon nitride film and a second silicon oxide film are stacked consecutively, said first electrode having a polysilicon surface, the method comprising forming said silicon oxide films by a process comprising:

exposing a silicon oxide film deposited by a CVD process to atomic state oxygen O* formed by exciting plasma in a mixed gas of a gas containing oxygen and a gas predominantly of a Kr gas by a microwave.

15. – 19. (Canceled)

20. (Previously presented) A method of fabricating a flash memory device, said flash memory device comprising a silicon substrate, a first electrode of polysilicon formed on said silicon substrate with an insulation film interposed therebetween, and a second electrode formed on said first electrode with an inter-electrode oxide film interposed therebetween, the method comprising forming said inter-electrode oxide film by a process comprising:

depositing a polysilicon film on said silicon substrate as said first electrode; and

exposing a (111) oriented surface of said polysilicon film to atomic state oxygen O* formed by exciting plasma in a mixed gas of a gas containing oxygen and an inert gas predominantly of a Kr gas by a microwave to form said inter-electrode oxide film.

21. – 51. (Canceled)